



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246

**C45-19C**  
**Job Sheet 191787**



**Part No:** C45-19C

**Job Qty:** 1 pcs

**Part Name:** Weldment



**Part Weight:** 0 lbs

**Status:** New

**Priority:** Medium

**Job Created:** 3/8/19

**Job Tracking No:**

**Due Date:** 3/25/19

**Created By:** Marie Lajeunesse

**Type:** SOLD

**Description:**

**Note:** C45-19C REV.5 IPP REV:A 18.01.22 NEW ISSUE DD VERF:DP

**Ship Via:**

### Bill of Materials

### Job Routing

| Op No | Operation                 | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier | Sign-off          |
|-------|---------------------------|-------|------------|----------|-----------|---------|---------------------|-------------------|
|       |                           |       |            |          | Setup Hrs | Run Hrs |                     |                   |
| 100   | Large Fab - Welded Assy-1 | 1 pcs | 3/25/19    |          | 0.00      | 10.00   | Large Fab - 1       |                   |
|       |                           |       |            |          |           |         | Large Fab - 10      |                   |
|       |                           |       |            |          |           |         | Large Fab - 2       |                   |
|       |                           |       |            |          |           |         | Large Fab - 3       |                   |
|       |                           |       |            |          |           |         | Large Fab - 4       |                   |
|       |                           |       |            |          |           |         | Large Fab - 5       |                   |
|       |                           |       |            |          |           |         | Large Fab - 6       |                   |
|       |                           |       |            |          |           |         | Large Fab - 7       |                   |
|       |                           |       |            |          |           |         | Large Fab - 8       |                   |
|       |                           |       |            |          |           |         | Large Fab - 9       |                   |
| 110   | QC 9                      | 1 pcs | 3/25/19    |          | 0.00      | 0.00    | QC 9 - 10           | DAS<br>24<br>9-89 |
|       |                           |       |            |          |           |         | QC 9 - 18           |                   |
|       |                           |       |            |          |           |         | QC 9 - 24           |                   |
|       |                           |       |            |          |           |         | QC 9 - 43           |                   |
|       |                           |       |            |          |           |         | QC 9 - 50           |                   |
|       |                           |       |            |          |           |         | QC 9 - 9            |                   |
| 120   | QC 5                      | 1 pcs | 3/25/19    |          | 0.00      | 0.00    | QC 5 - 10           | DAS<br>24<br>9-89 |
|       |                           |       |            |          |           |         | QC 5 - 12           |                   |
|       |                           |       |            |          |           |         | QC 5 - 17           |                   |
|       |                           |       |            |          |           |         | QC 5 - 18           |                   |
|       |                           |       |            |          |           |         | QC 5 - 19           |                   |
|       |                           |       |            |          |           |         | QC 5 - 22           |                   |
|       |                           |       |            |          |           |         | QC 5 - 24           |                   |
|       |                           |       |            |          |           |         | QC 5 - 3            |                   |
|       |                           |       |            |          |           |         | QC 5 - 42           |                   |
|       |                           |       |            |          |           |         | QC 5 - 43           |                   |
|       |                           |       |            |          |           |         | QC 5 - 49           |                   |
|       |                           |       |            |          |           |         | QC 5 - 51           |                   |
|       |                           |       |            |          |           |         | QC 5 - 58           |                   |
|       |                           |       |            |          |           |         | QC 5 - 68           |                   |
|       |                           |       |            |          |           |         | QC 5 - 9            |                   |



**Container No:** S172440



**Part:** C45 - 19C

**Job No:** 191787

**Serial No/Batch:** S172440

**Revision:** 5

**Inspector:**

**Exp Date:**

**Instructions:**

Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
CANADA  
TEL.: 1 613 632-5200  
Email: sales@dartaero.com  
www.dartaerospace.com

Date: 04/15/19

Plex 3/8/19 10:08 AM Dart.lajeunesse.marie

|     |                               |       |         |      |      |                        |      |
|-----|-------------------------------|-------|---------|------|------|------------------------|------|
| 130 | Powdercoat - 6 Fire Red - B4B | 1 pcs | 3/25/19 | 0.00 | 0.50 | QC 5 - 50              |      |
|     |                               |       |         |      |      | QC 5 - 30              |      |
|     |                               |       |         |      |      | QC 5 - 40              |      |
|     |                               |       |         |      |      | Powdercoat - 1 - B4B   |      |
|     |                               |       |         |      |      | Powdercoat - 2 - B4B   |      |
| 140 | QC 3                          | 1 pcs | 3/25/19 | 0.00 | 0.00 | Powdercoat - 3 - B4B   |      |
|     |                               |       |         |      |      | Powdercoat - 4 - B4B   |      |
|     |                               |       |         |      |      | QC 3 - 10              |      |
|     |                               |       |         |      |      | QC 3 - 13              |      |
|     |                               |       |         |      |      | QC 3 - 15              |      |
|     |                               |       |         |      |      | QC 3 - 17              |      |
|     |                               |       |         |      |      | QC 3 - 18              |      |
|     |                               |       |         |      |      | QC 3 - 2               |      |
|     |                               |       |         |      |      | QC 3 - 26              |      |
|     |                               |       |         |      |      | QC 3 - 28              | DAS  |
|     |                               |       |         |      |      | QC 3 - 3               | 28   |
|     |                               |       |         |      |      | QC 3 - 30              | 9-89 |
|     |                               |       |         |      |      | QC 3 - 34              |      |
|     |                               |       |         |      |      | QC 3 - 36              |      |
|     |                               |       |         |      |      | QC 3 - 41              |      |
|     |                               |       |         |      |      | QC 3 - 51              |      |
|     |                               |       |         |      |      | QC 3 - 58              |      |
|     |                               |       |         |      |      | QC 3 - 59              |      |
|     |                               |       |         |      |      | QC 3 - 6               |      |
|     |                               |       |         |      |      | QC 3 - 68              |      |
|     |                               |       |         |      |      | QC 3 - 9               |      |
|     |                               |       |         |      |      | QC 3 - 40              |      |
| 150 | Packaging 3-2 - Stock - B4B   | 1 pcs | 3/25/19 | 0.00 | 0.00 | Packaging 3 - 1 - B4B  |      |
|     |                               |       |         |      |      | Packaging 3 - 2 - B4B  |      |
|     |                               |       |         |      |      | Packaging 3 - 3 - B4B  |      |
|     |                               |       |         |      |      | Packaging 3 - 4 - B4B  |      |
|     |                               |       |         |      |      | Packaging 3 - 5 - B4B  | DAS  |
|     |                               |       |         |      |      | Packaging 3 - 6 - B4B  | 28   |
|     |                               |       |         |      |      | Packaging 3 - 7 - B4B  | 9-89 |
|     |                               |       |         |      |      | Packaging 3 - 8 - B4B  |      |
|     |                               |       |         |      |      | Packaging 3 - 9 - B4B  |      |
|     |                               |       |         |      |      | Packaging 3 - 10 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 11 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 12 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 13 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 14 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 15 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 16 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 17 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 18 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 19 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 20 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 21 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 22 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 23 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 24 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 25 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 26 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 27 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 28 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 29 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 30 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 31 - B4B |      |
|     |                               |       |         |      |      | Packaging 3 - 32 - B4B |      |

|                |       |         |      |      |                        |  |
|----------------|-------|---------|------|------|------------------------|--|
|                |       |         |      |      | Packaging 3 - 33 - B4B |  |
|                |       |         |      |      | Packaging 3 - 34 - B4B |  |
|                |       |         |      |      | Packaging 3 - 35 - B4B |  |
|                |       |         |      |      | Packaging 3 - 36 - B4B |  |
| 160 QC 21 - SA | 1 pcs | 3/25/19 | 0.00 | 0.00 | QC 21 - SA - 21        |  |
|                |       |         |      |      | QC 21 - SA - 70        |  |
|                |       |         |      |      | QC 21 - SA - 53        |  |

Location  
CORNER  
GAS  
ALAN

Part Op 100 - (Fabricate per Drwg)1-MANUFACTURE AS PER DWG, TACK WELD FOR INSPECTION BY: 9-88 USE

Descriptions: WELDING JIG C45. 2-Weld as per DWG. \*\*\*SEE NOTE 1, ALL HOLES MUST ALIGN\*\*\*

110 - QC9- Inspect visual per QSI004- Fusion Welds)

120 - (QC5- Inspect part completeness to step on W/O)

130 - (Fire Red(Ref:4.3.5.10) per QSI005 4.3)START TIME: \_\_\_\_\_ OVEN TEMPERATURE: \_\_\_\_\_ FINISH TIME: \_\_\_\_\_

140 - (QC3- Inspect Part Finish)

150 - Identify as per dwg & Stock Location: \_\_\_\_\_)

160 - (QC21- Final Inspection - Work Order Release

### Job BOM

008787

| Part / Item           | Component Name                                                                      | Quantity     | Operation                        | Container |
|-----------------------|-------------------------------------------------------------------------------------|--------------|----------------------------------|-----------|
| C45-18-1              | Lifting Plate                                                                       | 2 pcs (2 ea) | 100-Large Fab -<br>Welded Assy-1 | 5163927   |
| C45-18-5              | Boss                                                                                | 2 pcs (2 ea) | 100-Large Fab -<br>Welded Assy-1 | 5120955   |
| C45-18-6              | Bumper Bracket                                                                      | 1 pcs (1 ea) | 100-Large Fab -<br>Welded Assy-1 | 5163907   |
| MT-A513-T-1.000W0.120 | A513 Seamless Alloy Steel Round Tubing 1"dia. x 10.5000 ft (10.5 ea)<br>0.120" Wall |              | 100-Large Fab -<br>Welded Assy-1 | 5070826   |

### Job Allocations

| Operation                     | Component Part        | Required | Inventory | Allocated |
|-------------------------------|-----------------------|----------|-----------|-----------|
| 100-Large Fab - Welded Assy-1 | C45-18-1              | 2        | 2         | 0         |
|                               | C45-18-5-PC           | 2        | 0         | 0         |
|                               | C45-18-6              | 1        | 1         | 0         |
|                               | MT-A513-T-1.000W0.120 | 11       | 120       | 0         |

### Part Specifications

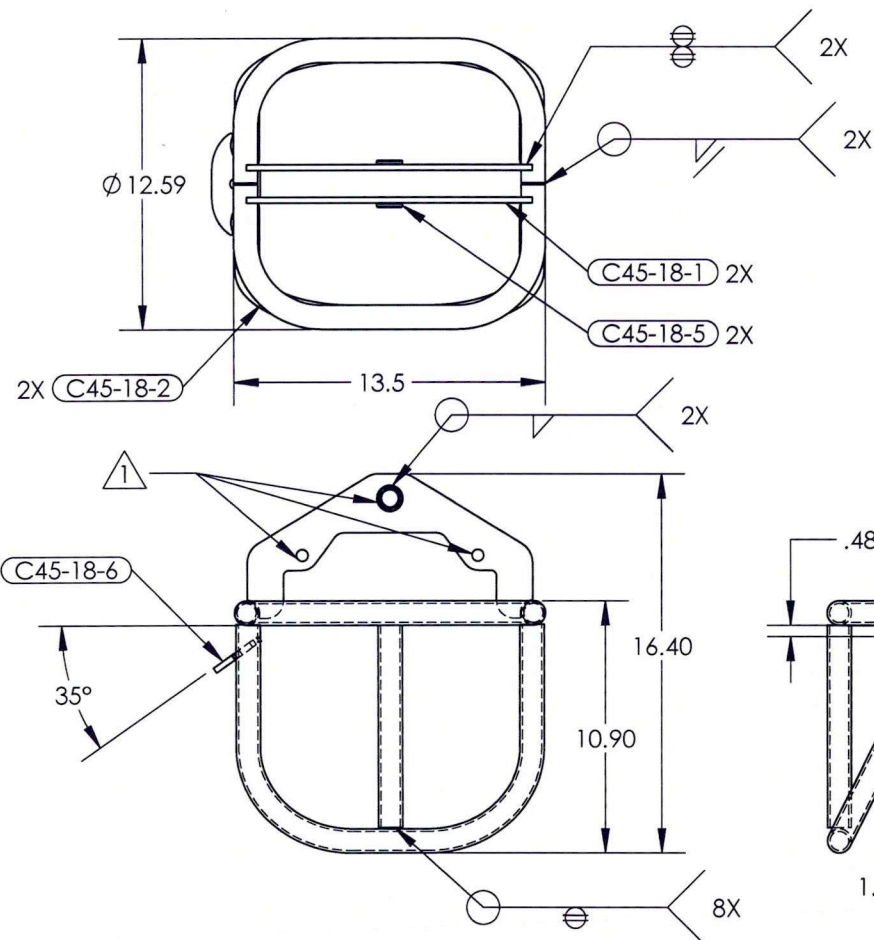
Specifications could not be found.

Plex 3/8/19 10:08 AM Dart.lajeunesse.marie

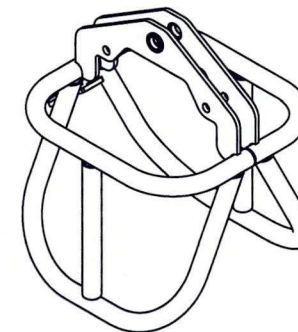


This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Eugene, OR.

| REVISIONS |         |                                                                                                                                                                 |            |         |          |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|----------|
| REV       | ECR     | DESCRIPTION                                                                                                                                                     | DATE       | INITIAL | APPROVED |
| 3         |         | AS DRAWN BY CANAM.                                                                                                                                              | 11/16/2012 | JAG     |          |
| 4         | 15-0087 | UPDATED TO NEW DRAFTING STANDARDS. CH'D WIDTH BETWEEN LIFING PLATES WAS 1.14 IS 1.16 +.02 -.00. CH'D DIM WAS 1.29 IS .48. DELETED DIM .250. ADDED FIXTURE NOTE. | 4/16/2015  | RJC     | JAG      |
| 5         | 16-0207 | DELETED POWDER COAT RED FINISH SPEC, DELETED MATERIAL COLUMN FROM BOM. CH'D DWG TO SHEET METAL TOLERANCE.                                                       | 11/2/2016  | RJC     | JAG      |



SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
WITHOUT NOTICE  
WORK ORDER  
NO. 191787 M-5  
19-03-08



#### NOTES:

1. THREE HOLES MUST BE ALIGNED FROM FRONT PLATE TO THE BACK PLATE.
2. ASSEMBLE USING FIXTURE C45/C60-F.

| B/O | Part #   | UNIT QTY | Description    |
|-----|----------|----------|----------------|
|     | C45-18-1 | 2        | LIFTING PLATE  |
|     | C45-18-2 | 2        | TOP SEMI-RING  |
|     | C45-18-3 | 2        | SIDE LOOP      |
|     | C45-18-4 | 2        | STIFFENER BAR  |
|     | C45-18-6 | 1        | BUMPER BRACKET |
|     | C45-18-5 | 2        | BOSS           |

|                                                                                                                                            |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>DART AEROSPACE</b>                                                                                                                      |                   |
| TITLE<br><b>WELDMENT C45 CAGE</b>                                                                                                          |                   |
| DWG NO.<br><b>C45-19C</b>                                                                                                                  | REV<br><b>5</b>   |
| MAT'L<br>HEAT TREAT<br>FINISH POWDER COAT RED<br>SPEC                                                                                      |                   |
| UNLESS OTHERWISE SPECIFIED<br>DIMENSIONS ARE IN INCHES<br>.XXX ± .010 FRACTIONS ± 1/8<br>.XX ± .03 ANGLES ± 1°<br>.X ± .1 SURFACES = 125°  |                   |
| 1. BREAK ALL SHARP EDGES .015 x 45° OR .015R<br>2. DIMENSIONAL LIMITS APPLY AFTER PLATING<br>3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009 |                   |
| DRAWN BY: APICAL INDUSTRIES<br>CHECKED: DUERFELDT<br>OPPTS APPR: ANDERSON<br>QA APPR: LINDSAY<br>APPROVED: GILBERT                         |                   |
| SCALE<br>1:8                                                                                                                               | DATE<br>7/21/2009 |
| SHEET 1 OF 1                                                                                                                               |                   |

Entered: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. \_\_\_\_\_

Route update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |              |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------|--|
| Job: _____<br><br>Part No. _____                                                                                                                                                                                                                                                                                                                                                        | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/> | <b>DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/> </div> <div>           Eng. (Non-AW) <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Water Jet <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Quality <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |              |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                  | Sequence #:                                                                                                                       | QTY Affected :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                        | MRB (QSI042) |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Disposition            |              |  |
|                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Completed By           |              |  |
|                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lead hand / Supervisor |              |  |
|                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | QC / QA Coordinator    |              |  |
| <b>Root Cause</b><br><br>Operator <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Preservation <input type="checkbox"/><br>Material <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Human Factors <input type="checkbox"/> |                                                                                                                                   | <b>FAULT CATEGORY</b><br><br><div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Pressure/Forced<br/> <input type="checkbox"/> Bending<br/> <input type="checkbox"/> Crushing<br/> <input type="checkbox"/> Cracks<br/> <input type="checkbox"/> Crimp/Kink/Ripple/Wave/Twist<br/> <input type="checkbox"/> Marks/Chatter<br/> <input type="checkbox"/> Mislabeled         </div> <div> <input type="checkbox"/> Contamination<br/> <input type="checkbox"/> Misaligned/off center<br/> <input type="checkbox"/> BOM/Route<br/> <input type="checkbox"/> Broken/Damage/Defect<br/> <input type="checkbox"/> Incomplete/Unclear Instructions<br/> <input type="checkbox"/> Drill Holes<br/> <input type="checkbox"/> Fit/Function         </div> <div> <input type="checkbox"/> Power Loss/Surge<br/> <input type="checkbox"/> Folio/Program<br/> <input type="checkbox"/> Grain Direction<br/> <input type="checkbox"/> Weld<br/> <input type="checkbox"/> Wrong Stock Pulled<br/> <input type="checkbox"/> Out of Sequence<br/> <input type="checkbox"/> Off-set/Set-up         </div> <div> <input type="checkbox"/> Positioned Wrong<br/> <input type="checkbox"/> Outside Tolerance<br/> <input type="checkbox"/> Drawing<br/> <input type="checkbox"/> Finish<br/> <input type="checkbox"/> Part Lost/Missing<br/> <input type="checkbox"/> Misread         </div> </div> |                        |              |  |
| Other/Details:                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |              |  |